

CLAIMS

1. A pharmaceutical composition for use (or when in use) in the treatment of a sexual dysfunction (SD); the pharmaceutical composition comprising an agent capable of modulating the activity of an intermediate conductance calcium-activated potassium (IK_{Ca}) channel in the sexual genitalia of an individual; wherein the agent is optionally admixed with a pharmaceutically acceptable carrier, diluent or excipient.
2. A pharmaceutical composition according to claim 1 wherein the modulation of the IK_{Ca} channel activity is capable of mediating a relaxation of corpus cavernosal smooth muscle tone.
3. A pharmaceutical composition according to claim 1 or claim 2 wherein the SD is a male SD (MSD).
4. A pharmaceutical composition according to claim 1 or 2 wherein the SD is an erectile dysfunction (ED).
5. A pharmaceutical composition according to claim 1 or 2 wherein the SD is a male erectile dysfunction (MED).
6. A pharmaceutical composition according to claim 1 or 2 wherein the composition is admixed with a pharmaceutically acceptable carrier, diluent or excipient.
7. A method of treatment comprising administering to a subject an agent capable of modulating an IK_{Ca} channel activity in the sexual genitalia of said subject; wherein said agent is optionally admixed with a pharmaceutically acceptable carrier, diluent or excipient.

8. A method according to claim 7 wherein the modulation of the IK_{Ca} channel activity is capable of mediating a relaxation in corpus cavernosal smooth muscle tone.

5 9. A method according to claim 7 or 8 wherein said subject has a SD.

10. A method according to claim 9 wherein the SD is a male SD (MSD) or a female SD (FSD).

10 11. A method according to claim 10 wherein the SD is an erectile dysfunction (ED).

12. A method according to claim 9 wherein the SD is a male erectile dysfunction (MED).

15 13. A method according to claim 7 or 8 wherein the composition comprises a pharmaceutically acceptable carrier, diluent or excipient.

19 20 14. An assay method for identifying an agent capable of modulating an IK_{Ca} channel activity in order to treat a SD; the assay method comprising: contacting the agent with the IK_{Ca} channel; measuring the IK_{Ca} channel activity; wherein an increase in the IK_{Ca} channel activity is indicative that the agent may be useful in the treatment of the SD.

25 15. An assay method according to claim 15 wherein the SD is MED.

16. A process comprising the steps of:

- (a) performing the assay according to claim 14 or claim 15;
- (b) identifying one or more agents capable of modulating the IK_{Ca} channel activity; and
- 30 (c) preparing a quantity of those one or more identified agents.

17. A method of treating a SD with an agent; wherein the agent is capable of modulating an IK_{Ca} channel activity in an *in vitro* assay method; wherein the *in vitro* assay method is the assay method defined in claim 14 or claim 15.

5 18. Use of an agent in the preparation of a pharmaceutical composition for the treatment of a SD; wherein the agent is capable of modulating an IK_{Ca} channel activity when assayed *in vitro* by the assay method according to claim 14 or claim 15.

10 19. An agent identified by the assay method according to claim 14 or claim 15.

20. An agent according to claim 19 for use in medicine.

21. An agent according to claim 19 for use in treating a SD (preferably MED).

15 22. A medicament for oral administration to treat a SD (preferably MED); wherein the medicament comprises the agent according to claim 19.

23. A diagnostic method wherein the method comprises: isolating a sample
20 from the sexual genitalia of an individual; determining whether the expression and/or IK_{Ca} channel activity in the sample from the individual has an effect on the relaxation of corpus cavernosal smooth muscle tone in the sexual genitalia of the individual.

25 24. A diagnostic composition or kit comprising means for detecting an entity in an isolated sample from the sexual genitalia of an individual; wherein the means can be used for determining whether the expression of the IK_{Ca} channel and/or the level of IK_{Ca} channel activity in the sample from the individual has an effect on the relaxation of corpus cavernosal smooth muscle tone in the sexual genitalia of
30 the individual.

25. An animal model useful in the identification of agents capable of treating SD (in particular MED), said model comprising an anaesthetised animal including

means to measure IK_{Ca} channel activity of the corpus cavernosal smooth muscle cells of said animal.

26. An assay method for identifying an agent capable of modulating IK_{Ca} channel activity in order to treat a SD (preferably MED); the assay method comprising: administering an agent to the animal model of claim 25; and measuring the IK_{Ca} channel open time probability in the sexual genitalia of said animal.

27. A method of identify agents capable of mediating the relaxation of corpus cavernosal smooth muscle tone comprising using an IK_{Ca} channel as a target.

28. A method according to claim 27 wherein the IK_{Ca} channel is used to screen for agents capable of modulating IK_{Ca} channel activity.

29. A method according to claim 28 wherein the modulation of the IK_{Ca} channel activity enhances nitrenergic or nitric oxide-mediated relaxation of corpus cavernosal smooth muscle tone.

30. An IK_{Ca} channel and/or an agent as described in the accompanying Figures.

31. An IK_{Ca} channel and/or an agent substantially as described in the accompanying Figures for use in enhancing nitrenergic or nitric oxide-mediated relaxation of corpus cavernosal smooth muscle tone.